Analysis of Bromate in Drinking Water

Question: Can EPA Method 317 be used for analysis of bromate in drinking water under the Disinfectants/Disinfection Byproducts Rule (D/DBPR)?

Answer: No. New federal requirements for the monitoring and reporting of disinfectants and disinfection byproducts in drinking water became effective on January 1, 2002, for water systems delivering surface water and serving 10,000 or more persons. Under the D/DBPR, the only approved test method for bromate is EPA Method 300.1.

However, the Department found, upon review of EPA Methods 317.0 and 300.1, that the conductivity measurement portion of EPA method 317.0 is comparable to method 300.1. Instrumentation differences prior to the conductivity detector occur only for column size, injection loop volume, and eluent flow rate. The key specifications are summarized in the table below:

Specification	**EPA Method 300.1**		**EPA Method 317**
Column Type	Dionex AS9HC		Same as EPA Method 300.1
Eluent	9 mM sodium bicarbonate		Same as EPA Method 300.1
Column Size	2-mm (microbore)	4-mm (normal bore)	4-mm (normal bore)
Injection Loop Volume	50 µL	200 µL	225 µL
Eluent Flow Rate	0.4 mL/min	1.25 mL/min	1.3 mL/min
Detector Used	Conductivity		Conductivity, followed by UV-visible absorbance

Therefore, the Department has determined that laboratories certified to perform EPA Method 300.1 may perform bromate analysis using a 4-mm column size, 225 µL injection loop volume, 1.3 mL/min eluent flow rate and conductivity detection provided the following criteria are met:

1. The peak resolution with the 4-mm column is comparable to that obtainable with a 2-mm column and the requirements of EPA Method 300.1, Section 9.0 are met (EPA Method 300.1, Section 6.1.2).

2. All quality control samples are analyzed at the frequency specified in Section 3.1 of EPA Method 300.1.

If the above criteria are met, bromate results may be used for compliance reporting to the Department. Results from the conductivity detector must be reported and the method indicated as EPA Method 300.1.